What is claimed is:

1.   (Original) An apparatus for providing link layer security in a Physical Layer Transceiver (PHY) comprising:

analog circuitry configured to transmit to, and receive data from, a data transmission medium;

digital circuitry coupled to said analog circuitry, said digital circuitry configured to transmit to, and receive from, a Media Access Controller (MAC);

a PHY communications module coupled to said analog and digital circuitry;

a crypto engine coupled to said digital circuitry;

a crypto communications module coupled to said crypto engine; and

said PHY communications module being operatively coupled to said crypto communications module.

2.   (Original) The apparatus of claim 1, wherein said PHY communications module is configured to provide connectivity through a MDIO/MDC interface, and said PHY controls the operation of said crypto device.

3.   (Withdrawn) The apparatus of claim 1, wherein:

said PHY communications module is configured to provide connectivity through a MDIO/MDC interface;

said crypto communications module is configured to provide connectivity through an interface other than a MDIO/MDC interface.

4.   (Original) The apparatus of claim 1, wherein:

said PHY communications module is configured to provide connectivity through a MDIO/MDC interface; and

said crypto communications module is coupled to said MDIO/MDC interface.

5.   (Original) The apparatus of claim 1, further comprising a master communications module coupled between said PHY communications module and said crypto communications module.

6.   (Original)   The apparatus of claim 1, wherein said crypto communications module is configured to provide connectivity through a MDIO/MDC interface, and said crypto device controls the operation of said PHY.

7.   (Original)   The apparatus of claim 1, wherein said PHY communications module is configured to provide connectivity through a serial wire interface.

8.   (Original)   The apparatus of claim 7, wherein said serial wire interface is configured to communicate with a plurality of devices.

9.   (Original)   The apparatus of claim 8, wherein said plurality of devices include at least one device that communicates at the PHY level, and at least one device that performs security functions.

10. (Original) The apparatus of claim 7, wherein said serial wire interface communicates with at least one device that performs both PHY and Security functions.

11. (Original) An apparatus for providing link layer security in a Physical Layer Transceiver (PHY) comprising:

analog circuitry means for providing connectivity to a data transmission medium;

digital circuitry means coupled to said analog circuitry means, said digital circuitry providing connectivity to a Media Access Controller (MAC);

PHY communications means coupled to said analog and digital circuitry means;

crypto engine means coupled to said digital circuitry means;

crypto communications means coupled to said crypto engine means; and

said PHY communications means being operatively coupled to said crypto communications module.

12. (Original) The apparatus of claim 11, wherein said PHY communications means being configured for providing connectivity through a MDIO/MDC interface, and said PHY controls the operation of said crypto device.

13. (Withdrawn) The apparatus of claim 11, wherein:

PHY communications means being configured for providing connectivity through a MDIO/MDC interface;

said crypto communications means being configured for providing connectivity through an interface other than a MDIO/MDC interface.

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14.　(Original)　　The apparatus of claim 11, wherein:

said PHY communications means is configured to provide connectivity through a MDIO/MDC interface; and

said crypto communications means is coupled to said MDIO/MDC interface.

15.　(Original) The apparatus of claim 11, further comprising master communications means coupled between said PHY communications means and said crypto communications means.

16.　(Original) The apparatus of claim 11, wherein said crypto communications means is configured to provide connectivity through a MDIO/MDC interface, and said crypto device means controls the operation of said PHY.

17.　(Original) The apparatus of claim 11, wherein said PHY communications means is configured to provide connectivity through serial wire interface means.

18.　(Original) The apparatus of claim 17, wherein said serial wire interface means is configured to communicate with a plurality of devices.

19.　(Original)　The apparatus of claim 18, wherein said plurality of devices include at least one device that communicates at the PHY level, and at least one device that performs security functions.

20. (Original) The apparatus of claim 17, wherein said serial wire interface communicates with at least one device that performs both PHY and Security functions.